GE Unveils New Advanced Applications, Edge to Cloud Analytics and Robotics to Advance Digital Industrial Transformation for Customers

New Predix-powered solutions, partnerships accelerate the transformation journey beyond the factory walls and drive the next industrial revolution

- GE Digital announces integration of ServiceMax field service management solution and Asset Performance Management portfolio to transform service operations, reduce cost and eliminate unplanned downtime
- GE Ventures launches Avitas Systems, a new venture that will transform inspection services with advanced robotics, data analytics and artificial intelligence
- GE Power releases Predix-powered 'Digital Utility' to connect real-time machine and operations data with energy trading to drive more profitable utilities businesses

BERLIN – June 13, 2017 – Today at Minds + Machines Europe, GE (NYSE: GE) charted the course for digital industrial growth, unveiling new solutions that are purpose built for industrial assets, environments and operations. The event outlined the path to greater productivity for customers who take advantage of advances in the company's leading Asset Performance Management (APM) and ServiceMax industrial applications, powered by Predix, GE's platform for the Industrial Internet.

"Europe can lead the digital industrial era," said GE Chairman and CEO Jeff Immelt. "Investment in technology, such as automation, advanced manufacturing, and artificial intelligence – along with new skills – can transform industry and drive productivity. GE has long been committed to Europe, and we are invested in its future."

Delivering the Industrial Service Model of the Future

Transformation of the current industrial service model is a critical element of the digital industrial journey. Most companies today lack the ability to combine insights from data with actions in real time when managing and servicing assets. This contributes to unplanned downtime, which has significant impact on industrial productivity.

To reduce cost and eliminate downtime, it is critical for asset-intensive industries to shift from a reactive, break/fix service model to a predictive model. This change will help companies better understand potential equipment issues preemptively or act upon them quickly with the correct tools and parts.

To achieve this, GE Digital unveiled an integrated solution to deliver the industrial service model of the future that combines the power of ServiceMax, its cloud-based field service management (FSM) solution, with its intelligent [Asset Performance Management](#) portfolio. Available in late 2017, the combination of ServiceMax + APM will enable industrial companies to transform how they predict, manage and service the entire asset lifecycle.

"The Industrial Internet is enabling companies to take advantage of possibilities that previously seemed out of reach. But in many ways, we are still in the early stages of this transformation journey as companies seek to move from gaining insight to taking action and as automation gives way to autonomous systems," said Bill Ruh, CEO, GE Digital. "GE Digital is helping companies use technology and information to transform how they operate and create new

possibilities – from delivering the industrial service model of the future to creating entirely new business models."

GE Digital's APM and FSM solutions automatically collect and analyze service data – from predictive maintenance needs to failure information and recommended work actions – to help industrial companies move beyond traditional asset monitoring to advanced predictive maintenance and asset performance management.

This new approach also provides enhanced scheduling capabilities. Matching customers' service workforces with their service needs, the offering helps industrial companies dispatch the right engineers to the right job at the right time – and ensure they are qualified, prepared and equipped to successfully complete their work. Receiving updates from workers in the field, the software provides a closed loop from issue identification to resolution, while 'learning' about the most efficient issue resolution methods over time to improve analytics with each alert.

As companies accelerate digital transformation through the combination of GE Digital's APM and ServiceMax offerings, they can more proactively manage the entire asset lifecycle, increasing productivity and operational efficiencies that can open the door to future business growth.

Transforming service at the edge
Additionally, GE Ventures today launched Avitas Systems, a new data-driven company that will use predictive data analytics, robotics and artificial intelligence (AI) to deliver advanced inspection services to the oil and gas, transportation and energy industries.

"The inspection services industry requires cutting-edge technologies to avoid unplanned asset downtime and deliver new, valuable insights," said Alex Tepper, Managing Director of Avitas Systems. "We deploy state-of-the-art robotics and cloud-based technology to give customers the customized service and insights-based data they need to advance from reactive to predictive repair – no matter where their assets are located."

The Avitas Systems solution, using the Predix platform, is built to support the unique service needs of companies with remote assets, particularly in the oil and gas, transportation and energy industries. The solution helps customers analyze inspection data, integrates regulatory and external sources, such as weather, identifies defects automatically and recommends optimal inspection and maintenance schedules. The system can fuse data from diverse sources and independently analyze the relationships between them for deeper insights – and incorporates user feedback to make defect detection smarter and more accurate.

By reducing high-risk tasks through robotics, Avitas Systems can make inspection processes safer and more efficient through data automation, decreasing costs by up to 25%. By performing inspections based on anticipated risk, instead of regular time intervals, Avitas Systems can also help to increase asset longevity.

GE estimates that service transformation represents a $40 billion market opportunity. With ServiceMax + APM and Avitas Systems, GE is helping industrial companies manage, optimize and gain insight into their assets across each stage of the lifecycle – all driven by Predix. As the only platform that provides computing capabilities from the edge to the cloud, Predix gives GE customers visibility, control and analytic insights to every part of their industrial infrastructure and operations.

Transforming Energy Management and Customer Operations

GE also announced a suite of new industrial applications, solutions and partnerships to help companies take advantage of the Industrial Internet – moving beyond the factory walls to enable the digital industrial companies of the future. The solutions build on GE's expansive suite of Predix-powered tools and applications purpose-built for the Industrial Internet.

- **_Data-Optimized Energy Trading & the 'Digital Utility':_** To help utilities navigate the changing energy market, GE Power unveiled the 'Digital Utility,' a suite of Predix-based applications that connect real-time machine data with a utility's profitability. The new [Business Optimization](#) software is first of its kind, bringing analytics to the business side of power and utilities companies to help energy traders act profitably in long-term, day-ahead and short-term wholesale markets. The Digital Utility includes updates to GE Power's [Operations Optimization](#) software, incorporating closed-loop analytics to improve generation efficiency for entire fleets. Additionally, GE's APM solutions for energy businesses now connect all assets across the entire Electricity Value Network (EVN) in an integrated application, providing customers with a single view of assets spanning power generation to the grid.

- **_Advanced Utility Operations:_** GE Digital alliance partner [PwC](#) showcased its Predix-powered commercial operations solution for utility companies. This solution enables executives to identify margin 'leakage.' The solution analyzes plant performance data from GE's Operations Optimization application, commercial data from dispatch and market-facing system from GE's Business Optimization application. The solution is expected to launch this summer.

- **_Reduced Carbon Dioxide Emissions:_** GE Distributed Power and Dalkia announced that through GE distributor Clarke Energy, the companies have equipped more than one-third of Dalkia's 170+ Jenbacher gas engines with GE's [myPlant* APM solution](#), powered by Predix. In total, the fleet of engines could power more than 240,000 French households, resulting in lower carbon dioxide emissions – which equates to taking nearly 100,000 European cars off the road annually.

- **_Predix-Powered Clean Energy:_** GE Renewable Energy and Fina Enerji signed a 10-year full service agreement that covers 150 GE wind turbines in Turkey. The deal will implement GE's Predix-based Digital Wind Farm hardware and software solutions, which use data analytics to increase wind farm operations. With these digital capabilities, GE Renewable Energy will help develop smarter wind power forecasts for the Turkish market.

- **_Predix-Enabled Additive Manufacturing:_** GE Additive will add Predix edge technology to its Concept Laser M2 cusing additive machines. This move allows customers to remotely monitor and collect data from their machines – helping them analyze trends and uncover insights to improve asset performance and operations.

- **_Data-Driven Drilling:_** Last year, GE's Marine Solutions and Maersk Drilling announced a partnership to collaborate on a data analytic-driven pilot project, aimed at increasing Maersk's drilling vessel's productivity by reducing maintenance costs by up to 20 percent and increasing drilling productivity. The deployment of SeaStream* Insight, GE's APM solution for Marine powered by Predix, is already showing great potential, and Maersk

and GE are looking to expand onto Maersk's second rig, Interceptor, to broaden the outcomes achieved from the pilot project.

Together, these solutions and deployments advance GE's vision for the Industrial Internet with a portfolio designed to accelerate customers' transformation journeys and create new paths to growth for customers of every size and scale.

Minds + Machines Europe 2017 convenes the best and the brightest of the technology world — including GE customers, developers, partners, industry luminaries and technology thought leaders. This year's event dove deeper into the technology driving digital industrial transformation.

ABOUT GE
GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry. www.ge.com

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